

Abstract

A system for controlling a contention state for a communication link between a base station controller and customer premises equipment in point-to-multipoint communication. The contention state is controlled using a state machine. The state machine includes a grant pending absent state in which a unicast request slot is maintained open for use by the customer premises equipment. During the grant pending absent state, the customer premises equipment sends no upstream data to the base station controller but can use the unicast request slot to request a data slot for sending upstream data to the base station controller. Preferably, the state machine further includes an idle state in which the customer premises equipment awaits arrival of data packets to send as upstream data to the base station controller. The state machine preferably further includes a deferring state in which the customer premises equipment defers contending for the data slot so as to avoid collisions with other customer premises equipment. The state machine also preferably includes a grant pending state in which the customer premises equipment awaits and receives grant of the data slot for sending upstream data to the base station controller and sends upstream data to the base station controller after grant of the data slot. In the grant pending state, the customer premises equipment preferably uses piggybacking to request grant of a next data slot while sending upstream data to the base station controller.